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AN APPLICATION OF THE SEMANTIC DIFFERENTIAL TECHNIQUE TO JAZZ SELECTIONS

A Thesis

Presented to

the Graduate Faculty of the Department of Psychology

University of Omaha

In Partial Fulfillment

of the Requirements for the Degree

Master of Arts

by

William C. Rankin

June 1963

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CHAPTER I

THE PROBLEM AND DEFINITIONS OF TERMS USED

Jazz is the kind of music played by jazz musicians. This rather circular description is similar in nature to most definitions concocted by critics and reviewers of jazz. Steeped in jazz lore, the critic or reviewer can frequently offer information as to who played what and when or where it was played. Utilizing this bit of esoteric knowledge, the critic or reviewer supplements generally inadequate definitions for the elusive attributes of jazz by constructing a point of view which in effect partitions jazz into categories of style. These partitioned categories of style which seem to bear some resemblance to chronological ordering become a loose-fitting framework within which various jazz compositions, renditions, etc., may be described and evaluated.

No one has ever determined the effectiveness of such a compartmentalization for afixing a meaningful description of jazz music perceptable to the casual, unsophisticated listener. In so many words no one has discovered whether the name for a style genuinely relates to something inherent in the music or whether the name is just an historical fiction. The truth probably lies more in the direction of the latter conclusion.

In recent years a technique designed to measure meaning has been developed by C. E. Osgood at the University of Illinois.[1] Osgood's

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[1] Osgood, C. E., et al. The measurement of meaning. Urbana: University of Illinois Press, 1957.

technique is called the Semantic Differential. It has been used to assess the meaning of a wide variety of concepts ranging from words to actual physical things. From early factor analytic investigations came three factors--evaluation, activity, and potency. These three factors are analogous to the three dimensions of semantic space within which meaning must fall according to Osgood. The three factors have been demonstrated to be reliable in several researches in which the technique has been used and where the results have been studied factorially.

Jazz has never been subjected to the scrutiny of the Semantic Differential. Hence, it is not known if the same factors will emerge from the application of this technique to a study of jazz as have quite reliably emerged from applications of the technique in other areas.

I. THE PROBLEM

Statement of the problem. It was the purpose of this study (1) to test the meaningfulness of categories of jazz styles to naive listeners by employing the Semantic Differential technique, and (2) test the reliable presence of Osgood's three factors--evaluation, activity, and potency when jazz selections are the concepts to be judged.

Assumptions. Probably the biggest assumption made in this study was that two jazz selections would be sufficiently representative of a given category of style. Practical considerations dictated the restriction in the number of selections, but it can well be argued that any one

selection cannot be entirely representative of all other selections within a given category. However, the two selections for each category were decided upon through careful considerations of expert judgment.

The second assumption was that the categories of style presented in this investigation are not unlike those often used and referred to by sophisticated critics and review writers in the field of jazz.

Hypotheses. The first hypothesis was that the usual categories of jazz style are not meaningful to the casual listener. That is, the casual or naive listener cannot or does not differentiate between jazz styles. Rather, the naive listener views jazz selections in terms of a more global perspective such as all jazz being perhaps, "loud" or "fast." At best, he is probably capable of only something like discriminating between "Dixieland" and "Not Dixieland." Naturally, the naive listener does not listen to or for the same things in a selection that the critic or reviewer would. Nor does the naive listener have the wealth of background information to make acceptable judgments of similarity of style comparable to the judgments of the sophisticated listener. It appears that the really significant difference between the casual and the sophisticated listener is the latter's possession of prior learning about who played what, when, and where. Since this information has no bearing on the judgments the nonsophisticated listener would make concerning style, a possible conclusion is that any established style designation is more a function of knowledges of historical

rather than purely musical inputs. This would make it reasonable to expect as much judgmental variance by naive listeners within categories as among categories.

The second hypothesis was that regardless of the meaningfulness of categories, the three Osgood factors will emerge from a factor analysis of scale scores from judgments made by naive listeners on jazz selections. The factors of evaluation, activity, and potency have appeared in many studies involving thousands of judgments on many diverse concepts. Therefore, it seemed quite reasonable to assume a strong likelihood of these three factors accounting for most of the variance in judgments made by casual listeners.

Delimitation of the problem. This study was concerned only with jazz selections, unsophisticated listeners, and a typical classification scheme of jazz style. The Semantic Differential was the principal investigation technique. No attempt was made to analyze the musical structure of jazz selections.

Significance and implications of this research. Initial research efforts of this type are usually somewhat difficult to assess in terms of their contribution to the welfare of society. Exploratory excursions into the esthetic realm often receive little or no recognition from the materialistic segment of society, yet they may be a part of the proper study of mankind. It is hoped that this study will provide a step toward better music programming in commercial media. Something can be done about improving music programming, and this study may point out the

direction that such improvement should follow.

II. DEFINITIONS OF TERMS USED

Selection. The term selection shall be defined as the entire playing of a recorded musical composition performed in a jazz style by jazz musicians. Since the selections used in this study had been pre-recorded, most of them were of the usual three to five minutes playing time. Each selection became a concept to be judged according to the Semantic Differential technique.

Blues. The blues is one of the commonly accepted roots of jazz. As such, it has been a mainstay acting as a major vehicle through which the jazz musician could express himself. Defined simply, the blues consists of a standard progression of chords totaling twelve musical bars. An infinite number of melody lines can be fitted to this chord progression. Since the blues has been so much an integral part of jazz music almost since its beginnings, it has been played by innumerable musicians in a wide variety of styles. Because of its prominence within jazz and the consistency of its chord structure there is considerable justification for the inclusion of a blues selection from each of the hypothetical categories in this study.

Jazz style. Jazz style is here defined as the characteristic manner in which jazz music is played. The name for a given style serves the function of conveniently identifying the more general modes of music expression. It is possible to say that something is played in the style

of Bach, or Charlie Parker, or some other real person. As is most often the case, the name for a style is derived from the way a group of musicians plays. Since the group is initially associated with some identifiable geographic locale, the name for the style that evolves is a function of both the group of musicians who have a similar style and the area in which they perform. This would account for the style name, Uptown New Orleans. A somewhat devious definition of jazz style would take cognizance of the above and append the statement that a given style is determined by whether or not critics, reviewers, and jazz sophisticates would tend to agree upon its distinctiveness and identifiability as a style. At best, this is a slightly shaky criterion.

Semantic Differential. In the operational sense, the Semantic Differential is a technique developed by Osgood for measuring meaning in his researches on the theory and measurement of meaning.[2] It consists of collecting judgments for the concept whose meaning is to be measured from a number of bipolar scales. Different concepts will have different meanings on the basis of different profiles of scale scores. Consequently, the concept dog, for example, differs meaningfully from the concept cat in that it will be judged more obedient than disobedient. Part of the meaning of dog entails obedience. The technique then can quantitatively detect semantic differences between various concepts.[3]

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[2] Ibid.

[3] Ibid., see Chapter III.

Jazz buff. Anyone who might be termed an afficianado of jazz music, who knows a considerable amount about its history, styles, and leading artists, may be described as a "buff." For purposes of this research, a jazz buff was operationally defined as anyone whose answers to the questionnaire on the back of the data gathering sheet were sufficiently accurate to indicate familiarity with the names of some well-known artists. In addition to this, a "buff" was identified by answers having to do with spending considerable time in listening to jazz or in other forms of appreciative indulgement. A copy of this questionnaire is found in Appendix B. The questionnaire was arbitrarily scored and as such constituted a gross screening device. It probably erred in the direction of false positives, leaving a truly naive sample of listeners.

III. ORGANIZATION OF THE REMAINDER OF THE THESIS

A review of the pertinent literature on jazz and the Semantic Differential follows in Chapter II. Chapter III will deal with the research procedures and the techniques used to analyze the listener's judgments. The actual results and a discussion of their implications regarding the experimental hypotheses will constitute Chapter IV. Chapter V will consist of a summary and conclusions which in turn will be followed by a bibliography and an appendix.

CHAPTER II

REVIEW OF THE LITERATURE

A great deal has been written on the general topic of jazz; so much has been written that an attempt to cite the bulk of it goes well beyond the scope of this research effort. A compromise can be reached at this juncture by focusing attention on jazz styles. The review of the jazz literature will, therefore, be confined to the topic of styles.

Since Osgood's initial work with a theory of meaning and the resulting development of a technique to measure meaning, an impressive and ever increasing body of research on the Semantic Differential has come into existence. In this literature review, reports on the nature of the Semantic Differential as a technique as well as reports on many applications were found. The major portion of this chapter is devoted to the review of the more typical kinds of researches involving the use of the Semantic Differential.

LITERATURE ON THE SEMANTIC DIFFERENTIAL

The Measurement of Meaning was an extremely helpful reference source for this study since it provides an extensive description of the rationale behind the Semantic Differential, its developmental stages, the evaluation of it as a technique, and some of its varied applications.[1] This book of necessity is still the most authoritative source

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[1] Ibid.

available on how to use the technique.

In 1955, Osgood and Suci first reported the results of two factor analytic studies of meaningful judgments using the same fifty bipolar scales.[2] Their first study involved the development of fifty scales from responses made to forty nouns from the Kent-Rosenoff lists. One hundred students rated twenty concepts on these scales. A matrix of intercorrelations, obtained across both subjects and concepts, was analyzed by Thurstone's Centroid Factor Method. Four factors were extracted and rotated into simple structure, maintaining orthogonality. Their second study involved the same fifty scales, but no concepts were rated. Forty subjects made forced-choice judgments between pairs of bipolar terms to indicate the direction of their relationship. The subjects were to encircle the word in the second pair of descriptive terms that was closest in meaning to the capitalized word in the first pair; for example, SHARP-dull; relaxed-tense. This procedure permitted the use of the D-Method of factoring which is essentially similar to Thurstone's diagonal method. Comparing the results of these two studies revealed a remarkable similarity and consistency in the first three factors--evaluation, potency, and activity. These three factors were then incorporated into Osgood's theory of meaning measurement as the major dimensions of semantic space.

The metric properties of the Semantic Differential were examined by Messick in an application of the psychometric method of successive

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[2]Osgood, C. E., and Suci, G. S. (U. Illinois, Urbana). Factor analysis of meaning. J. exp. Psychol., 1955, 50, 325-338.

intervals applied to nine of the most frequently used scales.[3] Based on data collected by Osgood and Suci, Messick's analysis suggests that the scaling procedures implicit in the Semantic Differential have some definite and defineable metric characteristics. It is Messick's conclusion that very little distortion results from using successive integers as category mid-points for the scales. He states:

> This means an approximate equality of corresponding interval lengths from scale to scale and a similar placement of origins across scales. It seems reasonable to conclude that the scaling properties implied by the Semantic Differential procedures have some basis other than mere assumption.

Using the original 360 words from the Atlas,[4] Norman studied semantic judgments made over a four-week interval in terms of looking for variation of factors, individuals, and group scaling.[5] One of his findings was that group mean ratings show very high stability over time.

Work with the Semantic Differential technique involving languages other than English is exemplified by Kouwer's adaptation of the technique for the Netherlands.[6] His study consisted of a factor analysis of the judgments of 100 subjects on twenty-five concepts against twenty-

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[3]Messick, Samuel S. Metric properties of the semantic differential. Educ. psychol. Measmt., 1957, 17, 200-206.

[4]Jenkins, J. J., et al. An atlas of semantic differential profiles for 360 words. Amer. J. Psychol., 1958, 71, 688-699.

[5]Norman, Warren T. (U. of Michigan). Stability characteristics of the semantic differential. Amer. J. Psychol., 1959, 72, 581-584.

[6]Kouwer, B. J. Een bewerking van de polariteitsprofielen-methode van Osgood. (An elaboration of the semantic differential technique of Osgood.) Ned. Tijdschr. Psychol., 1958, 13, 1-14. (from the Psychological Abstracts--original article unavailable)

four scales with the factors extracted closely corresponding to Osgood's.

In the well-known multiple personality case of Eve White, the Semantic Differential was used with such concepts as FATHER, MOTHER, BABY, etc. over a period of a few months at times when each of the three personalities were being manifested. With no external information other than knowledge that the patient was a woman who was married and had a baby and a job, Osgood and Luria used the Semantic Differential scale scores to diagnose quite accurately the three different personalities and predict correctly which personality would ultimately emerge through therapy.[7]

Reeves was interested in the validity of the Semantic Differential for quantifying TAT results.[8] She was especially interested in making TAT results quantitative on the evaluative factor. Undergraduate subjects were used; they made judgments for ten TAT pictures on a twenty scale form of the differential, then wrote short plots for the story behind each picture. The plots were classified as to themes which in turn were judged on a positive-negative continuum by twenty TAT experts. For all ten pictures the direction of the differences in evaluative ratings compared well with the ratings of experts.

Another typical example of the kinds of application of the Seman-

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[7] Osgood, C. E., and Luria, Zella (U. Illinois, Urbana). Blind analysis of a case of multiple personality using the semantic differential. J. abnorm. soc. Psych., 1954, 49, 579-591.

[8] Reeves, Margaret P. An application of the semantic differential to TAT material. Dissertation Abstr., 1954, 14, 2121-2122. (Abstract of Ph. D. thesis, 1954, University of Illinois)

tic Differential to the research area of clinical diagnostic measures is the not too astounding study by Tolor.[9] Twenty scales were used by 68 undergraduate students to rate the Bender-Gestalt figures. Tolor found no sex differences related to the meanings evoked by the figures, but did find rather dissimilar meanings for the figures in terms of the varied nature of the polar phrases characterizing them. He did not find any stable associations between the facility with which the figures are recalled (difficulty level) and the connotative meanings assigned to them.

The hypothesis that cognitive similarity leads to greater communication effectiveness was tested by Triandis, using 155 subjects.[10] Semantic Differential profiles of bosses and subordinates were highly correlated when perceived communication effectiveness and personal liking were present. The conclusion to be drawn from Triandis' study is that similar profiles for a given concept indicate a better likelihood that people will be able to communicate effectively about it.

Osgood's Semantic Differential was applied to nine samples of non-objective art by five different groups of subjects (total N = 68) with differing amounts of formal training and sophistication in art, in a study undertaken by Springbett at the University of Manitoba. He

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[9]Tolor, Alexander (Fairfield State Hospital, Newton, Connecticut). The "meaning" of the Bender-Gestalt Test designs: A study in use of the semantic differential. J. proj. Tech., 1960, 24, 433-438.

[10]Triandis, H. C. (U. of Illinois). Some determinants of interpersonal communication. Hum. Relat., 1960, 13, 279-287.

found that non-objective art can be considered to have meaning. Since the pictures used as concepts had been classed as good, average, or poor, by five experts, Springbett's further findings were: (1) no agreement about good pictures, (2) a substantial agreement about average pictures, and (3) a higher agreement about the poor pictures.[11]

The original work of Tucker, using the Semantic Differential technique applied to abstract and representational paintings with artists and non-artists, should be discussed at this point. Tucker found that when artists or non-artists judge representational paintings the three Osgood factors emerge, although the scales defining the factors are somewhat different and the activity factor has more weight. He also found that in judgments of abstract paintings artists have a highly polarized evaluative judgmental structure, and non-artists have very little structure and very little meaning is attached by them to abstract paintings.[12] Although Tucker's samples were somewhat small, his research design appears to be quite sound for further semantic analyses in the esthetic realm.

Some of the scope of the applications of the Semantic Differential is revealed by Moss' survey.[13] He found the technique used in the

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[11]Springbett, B. M. The semantic differential and meaning in non-objective art. Percept. mot. skills, 1960, 10, 231-240.

[12]Tucker, W. T. Experiments in aesthetic communications. Unpublished doctor's dissertation, University of Illinois, 1955.

[13]Moss, C. Scott (State Hospital No. 1, Fulton, Mo.). Current and projected status of semantic differential research. Psychol. Rec., 1960, 10, 47-54.

following areas: cross cultural meaning, the semantic measure of situational anxiety, dream analysis and the related testing of psychoanalytic theory, exploration of the self concept in college students, and assessment of attitudes toward mental health professions. He concluded that this technique makes a helpful contribution to research in all of the above areas.

Further evidence of the increasing popularity of the technique and the general familiarity of researchers with the technique is seen from its use by Beck to determine teacher attitude changes towards educational media such as programmed instruction materials being introduced into schools in the Portland area.[14]

The following reference was included to show that in some situations the Semantic Differential may not be the most efficient procedure to employ. Block, at the University of California, Berkeley, used 112 introductory psychology students who were asked to describe their ideal self and their like-sexed parent.[15] The descriptions were made in terms of (1) the Semantic Differential technique and (2) a list of adjectives that were to be rated as "characteristic or true," "uncharacteristic or false," or as not especially relevant for a description. The two

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[14]Beck, Lester F. Assessment of some newly designed educational media for the self teaching of young children in school and at home. Title VII, Project No. 590, National Defense Education Act of 1958, Grant No. 7-35-100, U. S. Dept. of Health, Educ., and Welfare, Office of Education, June 1962, Portland State College, Portland, Oregon.

[15]Block, J. An unprofitable application of the semantic differential. J. Consult. Psych., 1958, 22, 235-236.

resulting distributions of discrepancy scores produced a correlation of .94 which meant information accessible by the one approach was also completely accessible by the other approach.

Two basic issues regarding four combinations of scale format and rating procedure were explored in an investigation by Wells and Smith.[16] The issues can be framed in terms of whether or not it makes any difference if the scale steps are defined by adverbial qualifiers or left blank and whether concepts should be judged singly or all at once. Wells and Smith obtained ratings from 400 New York housewives on the concepts of IDEAL MAN, IDEAL WOMAN, and SELF. Comparing median ratings of the above concepts derived from the four possible combinations of format and rating procedures, they concluded that the adverbial qualifiers in the scale format are generally desirable, except where raters are sophisticated in abstractions. For many researches in the opinion area, Wells and Smith feel the verbal description of the scale steps and judgments made on all concepts at once is the better procedure. Their general conclusion about the scale format and rating proceudre most commonly used in work with the Semantic Differential is that it should be used cautiously.

In a paper presented to the American Psychological Association in 1961, Osgood discussed research on the Semantic Differential over an approximate ten year period. The research Osgood discussed was concerned

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[16] Wells, William D. and Smith, Georgianna. Four semantic rating scales compared. J. appl. Psych., 1960, 44, 393-397.

with further examinations of the generality of semantic factor structures across cultures. He also elaborated on what he feels is the distinction to be made between "connotative" and "denotative" scale meanings by stating:

> Most adjectival scale terms have variable denotative meanings as well as their affective connotation. Particular concepts exert a selective limitation upon scale meanings, drawing forth a denotative usage of some and the connotation of others. The denotation of masculine-feminine is elicited by the concept ADLAI STEVENSON while its potency connotation is elicited by the concept DYNAMO; a denotation of the scale hot-cold is tapped by the concept LAVA, whereas its activity connotation is tapped by concepts like JAZZ and FESTIVAL.[17]

LITERATURE ON JAZZ

Probably the most heroic review of the literature on jazz was performed by Vexler as part of his thesis research on jazz music at the University of Pittsburgh.[18] Vexler has cited virtually every known bit of published material on jazz, all or most of which is irrelevant to this investigation. Vexler was interested primarily in tracing the process by which jazz became a sociologically defined institution. To do this, his major technique of investigation was an exhaustive review of the literature. The "literature" in this context ranged from interviews with jazz musicians to written accounts of the invective hurled at jazz by

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[17] Osgood, C. E. Studies on the generality of affective meaning systems. Amer. Psychologist, 1962, 17, 10-28.

[18] Vexler, Richard B. Jazz music in the United States: The institutionalization of an art structure. Unpublished master's thesis, University of Pittsburgh, 1961.

certain twentieth century authors of essays on morals. Vexler points out the lack of critics in the early years of jazz as possibly accounting for the natural development of an historical point of view in the critics who finally appeared on the scene.

Ulanov, a well known jazz critic and reviewer, in his History of Jazz in America discusses the influences of New Orleans and Chicago on jazz. New Orleans and Chicago are the names of two styles of jazz being studied in this research. Ulanov also gives a good account of the Bop period and Bop as a style.[19]

In his discussion of jazz styles, Ostransky follows the usual historical breakdown of four main jazz periods.[20] These periods by name and date are:

1. New Orleans, c. 1900 ending 1926
2. Pre-swing period which continues to about 1934
3. Swing period which continues to about 1945
4. Modern period which has not yet ended

An excellent and authoritative work by Newton discusses jazz styles and historical periods as well. The names of styles used in this study are discussed by Newton by name, both historical and commerical. Newton does not appear to be much concerned about names of styles, although the periods they represent are marked. He offers some fresh

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[19]Ulanov, Barry. A history of jazz in America. Viking Press, New York: 1952, pp. 35-48, 117-127, and 267-291.

[20]Ostransky, Leroy. The anatomy of jazz. University of Washington Press, Seattle: 1960, Chap. 5, Understanding Style, and pp. 122-148.

insight into understanding the development of jazz styles by his statement, "The evaluation of Western classical music . . . , is measured in centuries. Jazz has passed through equally profound and revolutionary transformations though on a much more modest scale--in decades." Newton's classification system is as follows:

1. Prehistoric from c. 1900 to c. 1917
2. Ancient from c. 1917 to c. 1929
3. Middle period c. 1929 to the early 1940's
4. Modern period from early 1940's to present

He further discusses the implications for a style through the determinants of geographic locales, white--non-white performers, size of the group, and of the ever changing social milieu.[21]

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[21]Newton, Francis. The jazz scene. Monthly Review Press, New York: 1960.

CHAPTER III

PROCEDURE

This chapter presents an account of the steps taken in obtaining the data to test the experimental hypotheses detailed in Chapter I. Hopefully, this account will prove useful for further researches into the general esthetic topic of music by providing a workable design.

Formulation of categories of jazz styles. The categories used in this study were arrived at rather arbitrarily, but they were based upon a knowledge of the systems critics and reviewers usually employ as evidenced by the citations found in Chapter II. The styles studied were as follows:

1. New Orleans
2. Chicago
3. Kansas City (or Mainstream)
4. Bop
5. Contemporary (jazz of the 50's)
6. Abstract

All of the styles, or names of styles, are well known with the possible exception of the Abstract jazz style. Abstract jazz is somewhat analogous to abstract painting; both modes of expression are non-representational. Although Ornette Coleman is recognized as the leading exponent of abstract jazz, Sonny Rollins and Don Ellis have also made recordings in this style. These six styles with some degree of

overlapping represent rough intervals in a chronological continuum of the history of jazz, from the early 1900's into the early 1960's.

Jazz selections used. In all, twelve jazz selections were used in this study. There were two selections chosen for each style. One of the selections in each pair was a blues selection. Virtually all selections were performed by small groups of Negro musicians. The description of each selection that follows deals with all information available for the selection and its position in the random order scheme in which all selections were presented.

Selection 1

Title: SERENATA
Personnel: The Jazztet; Art Farmer, trumpet; Benny Golson, tenor; Curtis Fuller, trombone; McCoy Tyner, piano; Addison Farmer, bass; Lex Humphries, drums.
Recording date: February 1, 1960
Label: ARGO LP 664
Style: Contemporary

Selection 2

Title: TIN ROOF BLUES
Personnel: Muggsy Spanier, trumpet; other personnel not listed. This was a standard six or seven man unit.
Recording date: not listed
Label: CRAFTSMEN C-8046
Style: Chicago (Blues)

Selection 3

Title: SLAM SLAM BLUES
Personnel: Red Norvo All-Stars; Red Norvo, vibes; Charlie Parker, alto; Dizzy Gillespie, trumpet; Flip Phillips, tenor; Teddy Wilson, piano; Slam Stewart, bass; J. C. Heard, drums.
Recording date: not listed
Label: JAZZTONE J-SPEC-100
Style: Bop (Blues)

Selection 4

Title: GROOVIN' HIGH
Personnel: Dizzy Gillespie and his Original Orchestra; Dizzy Gillespie, trumpet; Charlie Parker, alto sax; Clyde Hart, piano; Remo Palmieri, guitar; Slam Stewart, bass; Cozy Cole, drums.
Recording date: February 1945
Label: RONDO-LETTE LP All
Style: Bop

Selection 5

Title: LESTER LEAPS IN
Personnel: Kansas City Seven; Lester Young, tenor; Buck Clayton, trumpet; Dickie Wells, trombone; Count Basie, piano; Freddy Green, guitar; Walter Page, bass; Joe Jones, drums.
Recording date: September 5, 1939
Label: EPIC LN 3576
Style: Kansas City

Selection 6

Title: MANHATTAN BLUES
Personnel: Sam Price and his Kay Cee Stompers; Sam Price, piano; Jonah Jones, trumpet; Pete Brown, alto; Vic Dickenson, trombone; Milt Hinton, bass; Cozy Cole, drums.
Recording date: not listed
Label: JAZZTONE J-1207
Style: Kansas City (Blues)

Selection 7

Title: CHINA BOY
Personnel: Jimmy McPartland, cornet; Frank Teschemacher, clarinet; Bud Freeman, tenor sax; Joe Sullivan, piano; Eddie Condon, banjo; Jim Lannigan, bass; Gene Krupa, drums.
Recording date: December 9, 1927
Label: COLUMBIA CB-16
Style: Chicago

Selection 8

Title: BUDDY PETITE'S STOMP
Personnel: Punch Miller and his Jazz Band; Punch Miller, trumpet; Eddie Morris, trombone; John Handy, clarinet; Louis Gallaud, piano; Emmanuel Sayles, banjo; Sylvester

Selection 8 (cont.)

Handy, bass; Alex Bigard, drums.
Recording date: July 1960
Label: ICON LP-2
Style: New Orleans

Selection 9

Title: CARELESS LOVE BLUES
Personnel: Bunk Johnson, trumpet; George Lewis, clarinet; Jim Robinson, trombone; Baby Dodds, drums; Slow Drag, bass; L. Merrero, banjo; Sidney Brown, tuba.
Recording date: August 1944
Label: AMERICAN MUSIC RECORDS LP-647
Style: New Orleans (Blues)

Selection 10

Title: BLUE HAZE
Personnel: J. J. Johnson Quintet; J. J. Johnson, trombonium; Bobby Jaspar, tenor; Tommy Flanagan, piano; Wilbur Little, bass; Elvin Jones, drums.
Recording date: 1957
Label: COLUMBIA CL-1084
Style: Contemporary (Blues)

Selection 11

Title: RAMBLIN'
Personnel: Ornette Coleman, alto; Donald Cherry, pocket trumpet; Charlie Haden, bass; Billy Higgins, drums.
Recording date: not listed
Label: ATLANTIC 1327
Style: Abstract (Blues)

Selection 12

Title: CHANGE OF THE CENTURY
Personnel: Ornette Coleman, alto; Donald Cherry, pocket trumpet; Charlie Haden, bass; Billy Higgins, drums.
Recording date: not listed
Label: ATLANTIC 1327
Style: Abstract (Blues)

Obviously, not all selections could be recorded at the specific time a style was in vogue or considered "contemporary."

Selection of scales and scales used. Table I outlines the thirteen bipolar scales used in this study in a factor matrix containing dimensions (factors) and coordinates (loadings) from Osgood's second factor analytic study.[2] The factors are evaluation, potency, and activity, respectively.

Tape recording of selections. All selections used were recorded on tape in the order indicated above at 7 1/2 inches per second. Actual recording was facilitated by the professional assistance of a radio announcer and a jazz musician. According to instructions, they were able to edit some selections from the earlier jazz styles, New Orleans and Chicago, down to an average playing time of from two to three minutes by omitting some of the more repetitious choruses. Expert judgment accomplished this task. Each selection on the tape was preceded by the announcement, "Selection number one"; sixty seconds before the end of each selection came the recorded instruction, "Turn the page, you have sixty seconds to rate selection number one," etc. Rating time allowed by these instructions proved to be quite ample. Total listening and rating for the selections on the tape recording was approximately forty-two minutes.

Preparation of rating sheets and questionnaire. A sample of the instructions to the raters and the scale format together with the questionnaire is found in Appendix A. The items on the questionnaire were

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[2]Osgood, op. cit., p. 43.

TABLE I

SCALES USED AND THEIR ROTATED DIMENSION COORDINATES ON EVALUATION, POTENCY, AND ACTIVITY FROM OSGOOD'S SECOND ANALYSIS

		I (Eval.)	II (Pot.)	III (Act.)
1.	valuable--worthless	1.87	1.12	.25
2.	large--small	.12	1.76	- .02
3.	fast--slow	.42	1.10	1.50
4.	hot--cold	.42	.83	.65
5.	active--passive	.30	1.64	1.39
6.	clean--dirty	2.38	.46	.60
7.	heavy--light	-1.60	1.68	- .92
8.	strong--weak	.38	1.81	.67
9.	good-bad	2.29	.84	.07
10.	loud--soft	-1.71	1.03	.61
11.	clear--hazy	1.92	.69	.98
12.	relaxed--tense	2.17	.24	- .63
13.	pleasant--unpleasant	2.38	.56	.24

concerned with the amount of time and money spent on jazz, plus familiarity with well-known jazz peformers. In gathering the data, the subjects filled out the questionnaire after rating all twelve selections. Weighted scoring of the items was made on a rational basis giving particular attention to anyone knowing more than two of the jazz performers in item 10 and indicating more than ten per cent jazz in his record library.

Description of the sample. In all, 43 subjects rated the twelve selections. All subjects were students in an introductory class in psychology, taught during the 1962 summer session at the University of Omaha. The questionnaire eliminated 6 subjects from the sample, defining them as jazz buffs. As indicated earlier, 3 or more of those eliminated from the whole sample were very likely not extreme jazz buffs, but they at least seemed to be in an intermediate category. The mean age for the 37 subjects in the naive sample was 22.5, with 16 males whose mean age was 22.8 and 21 females whose mean age was 22.3. Motivation of the subjects during the rating period for the selections appeared to be excellent.

Analysis of the data. A k x l x m matrix of scores was generated; k scales, l selections, and m subjects, or 13 x 12 x 37 containing 5,772 judgments. Such an arrangement of data permitted a triple-classification analysis of variance.

In rawest form the data were nothing more than check marks on bipolar scales. The check marks took on a quantitative value through

the arbitrary assignment of, from left to right, values of 0, 1, 2, 3, 4, 5, and 6 to the seven positions along the scales.

From the analysis of variance, the results of which are reported in the next chapter, came a by-product useful for further statistical analysis. This by-product was a selection by scale matrix of total judgments obtained by summing across the 37 raters. Intercorrelations of the thirteen scales and the twelve selections were computed from this block of data.

Finally, both correlation matrices were factor analyzed. A principal-axes solution[3] and the varimax factor rotation scheme[4] were used. Both procedures had been programmed for the IBM 7070 computer by Dr. A. W. Bendig at the University of Pittsburgh.[5] Six factors were extracted from both matrices and rotated to both an approximation of simple structure and factorial invariance by maximizing the variance of the squared loadings on each factor. The program user can specify one or both of two criteria for programmed termination of the program; the "last" eigenvalue desired (the third, the eighth, etc.) can be indicated on the parameter card, and/or a fixed-point value can be put on the parameter card that will be used by the program as an upper limit to

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[3]Hotelling, H. Simplified calculation of principal components. Psychometrika, 1935, 1, 27-35.

[4]Kaiser, H. F. The varimax criterion for analytic rotation in factor analysis. Psychometrika, 1958, 23, 187-200.

[5]Acknowledgment must be made to the University of Pittsburgh's Computation and Data Processing Center with partial support through the National Science Foundation Grant G-11309.

the sum of the obtained eigenvalues. Naturally, the program will halt automatically if there is no more variance to extract. In this study, the number of factors programmed to be extracted was arbitrarily set at six.

CHAPTER IV

RESULTS

The discussion in this chapter focuses entirely upon the analytic approaches to the k scales by l selections by m subjects data cube. The analysis of variance tests, while not specifically used to test the two experimental hypotheses in this study, provided information about the main effects and interactions that occurred in this application of the Semantic Differential. The results of factor analyses of the intercorrelation matrices of scales and of selections were the primary criteria in evaluating the research hypotheses.

Analysis of variance. Reference to Table II reveals significant F values for all sources of variance analyzed. Significant differences were found between the thirteen scales, indicating that judgments clustered at different points on the different scales. This would tend to contradict Messick's conclusion about the scales having similar placement of origins.[1] The apparent disagreement might be partially explained by the fact that concepts in this study were restricted in type to jazz selections and were entirely auditory stimuli. The wisdom of a factor analysis of the intercorrelations of selections was naturally shaken by this observation.

Significant differences between selections were perceived by the naive listeners, but this in itself had no direct bearing on the styles

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[1] Messick, op. cit.

TABLE II

THREE-WAY CLASSIFICATION ANALYSIS OF VARIANCE
BY SCALES, SELECTIONS, AND SUBJECTS

Source of variance	ssq	df	msq	F*
Between scales (k)	370.54	12	30.878	6.720
Between selections (l)	1,383.82	11	125.802	16.696
Between subjects (m)	1,439.80	36	39.994	29.757
Interaction: scales/selections	3,577.94	132	27.106	20.168
Interaction: scales/subjects	1,985.01	432	4.595	3.419
Interaction: selections/subjects	2,984.03	396	7.535	5.606
Interaction: scales/selections/subjects	6,387.81	4,752	1.344	
Total	18,128.95	5,771		

*All significant beyond the .01 level

hypothesis. As was expected, individual differences in judgments made by the subjects were also significant as a main effect.

The findings of significant interaction between scales and selections together with the differences between scales and between selections were of greatest import. If there had been no interaction between scales and selections, (1) the hypothesis concerning reliability of the Osgood factors would have gone unsupported, and inversely, (2) the hypothesis concerning the lack of meaning of the typical jazz styles to the casual listener would have gained support. The research might well have ended at that point, but this was not the case and further analysis became necessary. The other interactions are simply further indications of individual differences in the naive subjects.

Factor analyses of scales and selections. Scale scores for the twelve selections on the thirteen scales summed across the 37 subjects are presented in Table III. Intercorrelations of the twelve jazz selections, their rotated factor loadings, and residual correlations appear in Appendix B. Table IV on page 32 contains the intercorrelations of the thirteen scales with residual correlations after factorization appearing below the diagonal.

Factor analysis of selections. As stated in Chapter I, no attempt was made to analyze the musical characteristics of jazz selections. Therefore, using the style categorization designated for each selection, practically all factors are uninterpretable. In other words, selections of divergent styles are loading together. A graphic rotation does

TABLE III

SUMS OF THIRTEEN SCALE SCORES FOR TWELVE JAZZ SELECTIONS JUDGED BY 37 SUBJECTS

Selections	Scales												
	1	2	3	4	5	6	7	8	9	10	11	12	13
1.	77	63	18	39	13	78	90	32	62	29	77	142	68
2.	54	109	174	82	107	80	137	101	50	134	82	33	24
3.	128	113	178	124	159	111	59	100	127	88	159	73	116
4.	98	109	70	92	54	78	133	89	92	73	79	103	82
5.	86	96	41	73	44	68	114	75	69	67	74	102	67
6.	70	88	149	78	104	79	101	77	59	91	51	54	52
7.	129	113	34	77	40	81	104	74	115	41	102	150	123
8.	108	90	38	58	38	84	99	70	103	43	90	150	102
9.	123	104	114	106	98	96	95	81	115	55	102	129	127
10.	67	89	150	114	140	79	114	98	63	140	80	43	48
11.	103	94	75	92	57	87	90	87	100	79	117	116	99
12.	194	135	76	131	99	121	102	111	175	53	149	184	190

TABLE IV

MATRIX OF INTERCORRELATIONS OF THIRTEEN BIPOLAR SCALES
AND RESIDUALS AFTER EXTRACTION OF FACTORS

Scales	1	2	3	4	5	6	7	8	9	10	11	12	13
1	(004)	699	-238	530	055	818	-390	333	988	-518	788	745	989
2	000	(002)	237	730	394	646	101	798	719	075	634	190	613
3	-004	-001	(007)	571	923	266	-039	629	-153	815	129	-783	-293
4	-004	003	002	(014)	789	721	-168	869	590	393	660	-112	475
5	003	002	-006	-004	(012)	495	-195	735	133	705	367	-583	-005
6	001	000	-002	002	-003	(004)	-530	521	856	-136	885	360	792
7	-002	002	000	006	003	000	(005)	167	-425	354	-587	-255	-446
8	001	-005	002	-012	-005	002	-009	(020)	401	600	488	-290	240
9	-001	-003	001	-005	000	-001	-002	006	(007)	-449	842	686	978
10	003	000	000	-008	002	-001	-004	003	001	(008)	-156	-892	-588
11	-002	002	000	008	003	-002	006	-011	-003	-004	(007)	376	763
12	000	000	002	-004	002	-003	-001	002	000	003	000	(005)	794
13	000	000	003	-002	-002	-002	-001	002	000	002	-001	003	(003)

little to improve the interpretability. Only factor I is worthy of specific mention, although not in terms of styles. Factor I might have been termed a bipolar factor, blues-nonblues, if it were not for the positive loadings of .581 for selection 11 and .285 for selection 9.

Factor analysis of scales. The rotated factor loadings of the thirteen scales on six extracted factors appear in Table VII. Factor I is clearly the same as Osgood's evaluative factor. This general evaluative factor is characterized by the loadings on good-bad, valuable-worthless, pleasant-unpleasant, clean-dirty, clear-hazy, and relaxed-tense.

The loadings on factor II of fast-slow, active-passive, and hot-cold suggest that it is similar to Osgood's activity factor. However, loud-soft and strong-weak, potency scales in most studies, also have high loadings on this factor.

Factor III with its heaviest loadings on heavy-light, large-small, strong-weak, and loud-soft seems to be quite similar to Osgood's potency factor. Considering that strong-weak and loud-soft have greater loadings on factor II, interpretation of factor III is somewhat vexing.

The loadings of clear-hazy, loud-soft and strong-weak on factor IV provided a hint that it might be a specific audio or sound factor. This speculative interpretation harks back to the stimuli or concepts judged. They were recordings which varied at least noticeably in terms of sound level and fidelity. Since this happened to be beyond control, it is possible that the "clearness" or "haziness" judgments were actually

TABLE VII

ROTATED FACTOR LOADINGS OF
THIRTEEN BIPOLAR SCALES

	Scale	I	II	III	IV	V	VI	h^2
1.	valuable-worthless	976	-157	-119	-042	052	-023	996
2.	large-small	802	327	324	067	-009	-371	998
3.	fast-slow	-087	970	-082	-038	-185	-049	993
4.	hot-cold	646	700	-005	017	275	046	986
5.	active-passive	185	959	-167	-061	000	033	988
6.	clean-dirty	866	298	-299	057	-210	148	996
7.	heavy-light	-280	015	957	-010	007	-025	995
8.	strong-weak	496	747	314	195	150	-127	980
9.	good-bad	980	-075	-156	014	054	-029	993
10.	loud-soft	-360	860	258	215	099	040	992
11.	clear-hazy	809	183	-383	393	-016	-056	993
12.	relaxed-tense	637	-752	-064	-045	003	138	995
13.	pleasant-unpleasant	949	-224	-184	-078	072	024	997

Transformation Matrix

Factor						
I	965	165	-189	061	031	-029
II	-145	973	148	084	023	-055
III	196	-129	946	017	134	-180
IV	-073	-098	-092	929	116	-317
V	-021	003	-023	061	860	505
VI	055	003	199	350	-477	780

denotative of the selection's sound characteristics. The loadings on factors V and VI were not sufficient to enable even a tentative interpretation.

Returning to the discussion of factors I, II and III in this study, they may be called evaluation, activity, and potency, without too much stretch of imagination. Consequently, the second experimental hypothesis is supported.

A few points made by Osgood are appropriate.[2] First of all, he states:

> When the sample of things being judged is restricted in some fashion, the nature and order of magnitude of the factors may change. For example, when judgments are limited to sociopolitical concepts (people and policies), there seems to be a coalescence of the second and third factors into what might be called a "dynamism factor"; this was apparent in a study of the 1952 presidential election . . . . It is as if things in this frame of reference that are "strong" are also necessarily "active" while things that are "weak" are also necessarily "passive." . . . When, for example, the sample of concepts are limited to aesthetic objects . . . a type of activity factor becomes relatively more prominent.

Osgood's statements concerning modifiability of the semantic space seem to agree with the results of the factor analysis of scales used in this study, in the following ways: (1) the fact that the activity factor in this study predominates in order and magnitude over the potency factor; and (2) the seeming "coalescence" of two potency scales, loud-soft and strong-weak, with the activity scales thus making for a plausible interpretation of factor II as a dynamism factor.

Regardless of the point of view adopted in interpreting the first

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[2]Osgood, op. cit., pp. 73-74.

three factors obtained from the intercorrelations of scales in this study, none of the results are in disagreement with Osgood's findings.

Distances between selections. Using scales 9, 3, and 7 as the purest measures of evaluation, activity and potency it was possible to gain considerably more insight into the first hypothesis. Taking the sums found in Table III for each pair of selections rated on fast-slow, it became clear that the activity factor contained primarily the simple distinction between faster tempo and slower tempo. Since most of the blues selections were slow to medium tempo and the other selections, medium to fast tempo, it could be concluded that naive listeners in general were capable of distinguishing most of the blues selections as slow; however, this finding has little to do with styles.

Looking at the selections in terms of the other two dimensions of semantic space, evaluation and potency, each pair of selections is shown graphically plotted. The distances correspond in the same proportion to distances computed by the formula:

$$D_{ab} = \sqrt{d^2_{ab9} + d^2_{ab7}}$$

where D_{ab} = the distance to be found,

d_{ab9} = the difference between the scale 9 values for selection a and selection b obtained from Table III,

d_{ab7} = the difference between the scale 7 values for selections a and b obtained from Table III;

a and b correspond to the two selections within a style.

The calculated distances between selections were most extreme for the Bop, Abstract, and Chicago styles, being 82, 76, and 73, respec-

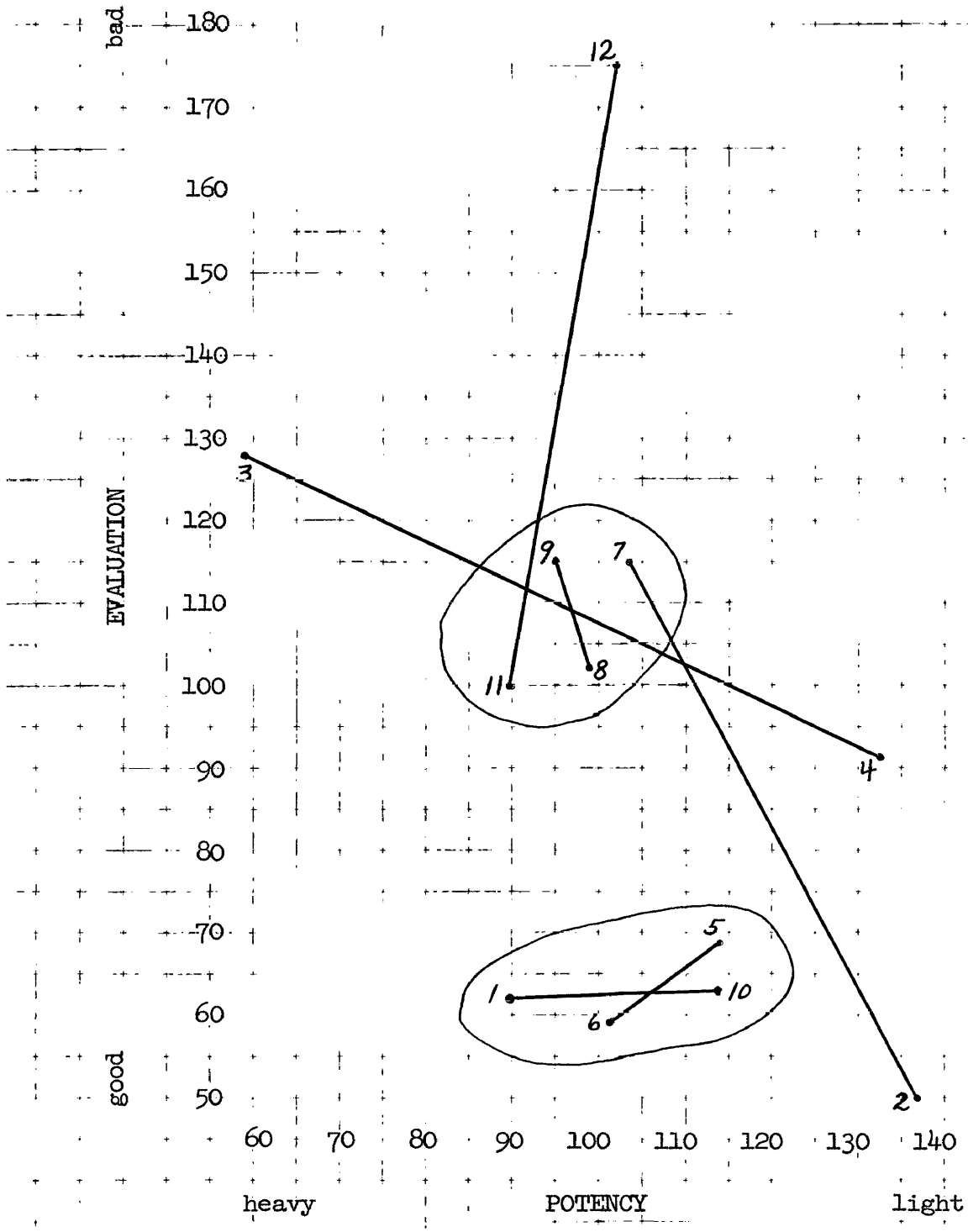

Figure 1. Distances between pairs of selections on the evaluation and potency dimensions.

tively. The distances between the pairs of selections for the Contemporary, Kansas City and New Orleans styles are 24, 16, and 13. The shorter distances indicated that these are somewhat more homogeneous styles; however, there was considerable overlapping of styles.

The graphic plot of the selections shows a good deal of similarity among selections 7, 8, 9, and 11. Selections 7, 8, and 9 represent the earlier jazz styles which may explain this relationship; the fact that selection 11, although an abstract selection, was a blues, may partially explain its proximity to the older styles selections. The Contemporary and Kansas City styles (selections 1 and 10, 5 and 6) were perceived as being both homogeneous and similar in their plotted positions. In terms of the evaluative dimension, the naive listeners had an extreme preference for the nonblues Chicago selection and an extreme dislike for the corresponding Abstract selection.

CHAPTER V

SUMMARY AND CONCLUSIONS

The experimental study of esthetic things, even though often relegated to a position of lesser importance in psychological research, requires the same tough-minded caution and reserve against too much speculative generalization as does research in any other area. Therefore, the conclusions reached in this study must necessarily reflect the limitations of the design employed.

I. SUMMARY

This study involved an application of Osgood's Semantic Differential technique to jazz selections. Two hypotheses were explored: (1) that the usual categories of jazz styles are not meaningful to the casual listener; and (2) the three Osgood factors would define the semantic space in which naive listeners would make judgments of jazz selections. Six typical jazz styles were represented by two jazz selections per style; one of each pair of selections was a blues. Recorded in random order on tape, the twelve selections were played for an elementary psychology class at the University of Omaha which rated each selection on thirteen of Osgood's scales. The judgments of 37 of the 43 subjects (six were eliminated as potential jazz buffs by questionnaire) resulted in a total of 5,772 ratings on the seven-step bipolar scales. Statistical treatment of the data consisted of appropriate F tests of differences between scales, selections, subjects, and their interactions.

Intercorrelations of scales and of selections were factor analyzed with the result that both hypotheses were supported to some extent. Results indicated that although the naive listeners could make meaningful judgments about jazz selections, these judgments were not always related to the style of the selection.

II. CONCLUSIONS

Several conclusions can be derived from the factor analysis reported in Chapter IV. Broadly speaking, this study reveals another uniquely informative application of well-established research tools.

Semantic Differential and jazz. Osgood's technique appears to be, among other things, a most useful device for the study of things whose meanings are somewhat vague and elusive. The three-dimensional semantic space notion seems to hold up with jazz selections as concepts. For jazz selections after registering an attitudinal preference on the evaluative factor, the naive listener seems more interested in the activity or possibly tempo of the selection than in its potency. He may even bring activity and potency together in judging a selection as both strong and active. Even though the three dimensions seem adequate for afixing meaning to jazz selections, possibly a fourth dimension exists when the selection is a recording. This fourth possible dimension seems to refer specifically to sound characteristics in the recording itself. In live performances, of course, this dimension would not exist.

Naive listeners and jazz styles. In regard to the first experimental hypothesis, naive listeners can make some meaningful judgments about jazz styles. However, the more typical style classification referred to by critics and reviewers gets somewhat blurred by the naive listener. That is, the naive listener produces a simpler classification comprised of two rather rough "styles." The styles might be called older jazz and newer jazz; the older jazz being New Orleans and Chicago, and the newer jazz, Kansas City and Contemporary. To the naive listener, any selection that strays beyond these two styles could be considered extreme jazz. The extreme refers to selections that are noticeably different in some way, such as the extreme popularity of Tin Roof Blues and the extreme dislike of Change of the Century.

III. IMPLICATIONS AND SUGGESTED RESEARCH

Implications for improving music programming. Since the major goal of organizations which disseminate music is to stay in business, the radio station that ignores the preferences of its various listening audiences cannot long endure. Yet, a radio station can do much on its own to influence popular preferences. Accepting this latter statement, it would seem that program directors should feel ethically bound to present the best in whatever kind of music is to be played. Best music of a kind should probably be determined by the expert judgment of the critic or reviewer. Having arrived at by expert judgment the best selections available, it would seem a simple matter to sample the judgments of the listening population on these selections in terms of eval-

uative, activity, and potency scales prior to formulation or revision of program policy. Of course, the sampling would have to be stratified according to those portions of the audience population to which specific commerical messages are aimed. This would enable programmers to sort among profiles and determine which selections should get played and when. The rationale here is based on Triandis' conclusion that similar profiles indicate more effective communication.[1]

Suggestions for further research. That jazz itself has been defined in so many ways points toward even greater difficulty to be encountered by anyone who attempts to meaningfully describe a jazz selection in terms of styles. This is often what the critic or reviewer must do in communicating or passing judgment on a jazz performance. How well a given selection compares with a given style or the prevailing notion of what constitutes that style is hardly a criterion for judging the artistic excellence of a selection. The really practical problem for the critic or reviewer is the lack of a uniform definition of good or bad jazz that will transcend mere personal preference. Just what the definition should be will most likely never be realized, but attainment of such an objective would be of mutual benefit to both listener and performer. It would be interesting to ascertain in some future research just what it is that critics and reviewers use to make judgments on jazz works.

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[1]Triandis, op. cit.

Since the naive listener is capable of at least making discriminations between selections in terms of the simple descriptive scales of the Semantic Differential, the critic or reviewer might more effectively communicate to his lay audience in similar terms. Obviously, this is still conjecture, but this means of communicating might facilitate one of the functions of the critic or reviewer, that of informing and possibly educating the interested public in what is taking place in the art form.

Further research in this area should utilize much the same design as the one used in this study. The styles could remain the same but different or more selections should be used. Rater sample size would need to be much larger and expanded to include sophisticated listeners. This would replicate the present study as well as provide for an analysis of critics and reviewers. In this sense the design appears most like Tucker's in his study of abstract and representational art.[2] The task of studying critics and reviewers alone seems to be involved enough and might therefore be a more pressing problem than the suggested replications.

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[2]Tucker, op. cit.

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APPENDIX A

Name_____ Age_____

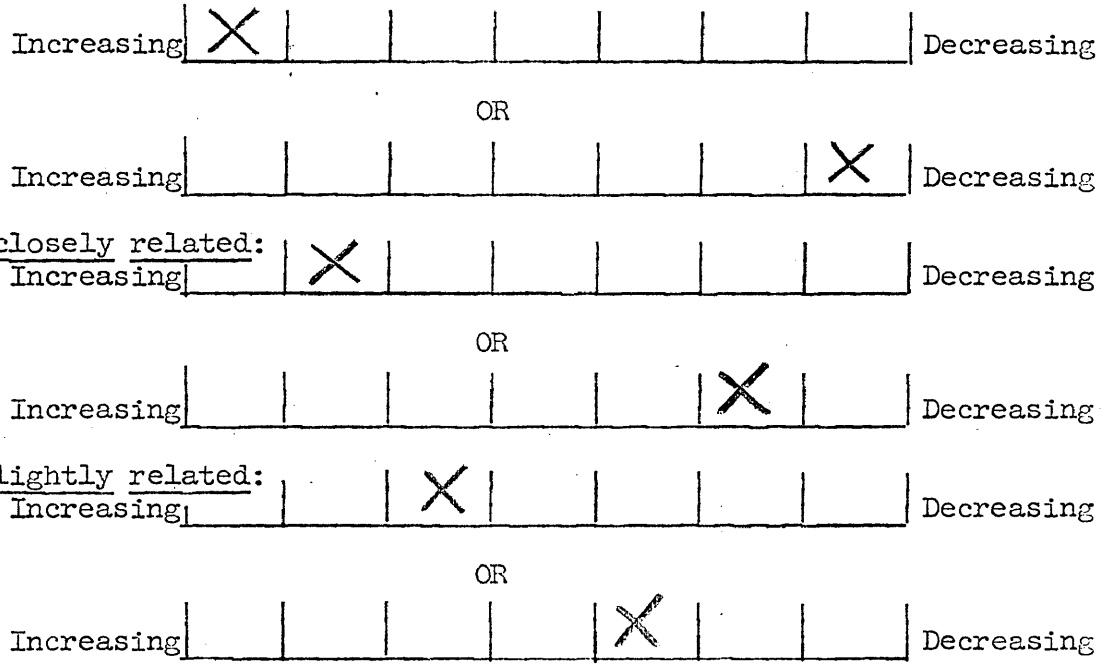
INSTRUCTIONS

The purpose of this study is to measure the meanings of certain musical selections to various people by having them judge the selections against a series of descriptive scales. In listening to these selections, please make your judgments on the basis of what they suggest to you.

On each page of this booklet you will find a set of scales upon which to rate the selection being presented. In all there will be 12 selections for you to rate. You are to begin rating a selection only when instructed to do so via the tape recording. When told to begin rating, do so; you will have ample time in which to accomplish this task for each selection. The rating time allowed for each selection is approximately 1 minute.

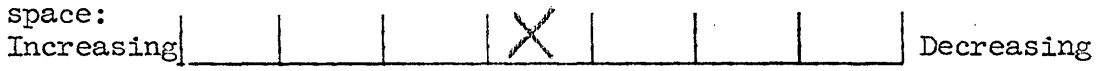
Here is how to use these scales.

You should place your check mark as follows, if the impression you get from the selection is very closely related to one or the other end of the scale:



The direction toward which you check depends upon which of the two ends of the scale seem most characteristic of the particular selection you are judging.

If you consider the selection to be neutral on the scale, both sides of the scale equally associated with it, or if the scale is completely irrelevant, unrelated to the selection, then you should place your check mark in the middle space:



REMEMBER

1. Place your check marks in the middle of spaces, not on boundaries.
2. Be sure to check every scale for each selection. No omissions.
3. Put only one check mark on each scale.
4. Listen as carefully and attentively as you possibly can.

DO NOT TURN PAGE TO RATE
SELECTION 1 UNTIL YOU ARE TOLD

SELECTION 1

valuable							worthless
large							small
fast							slow
hot							cold
active							passive
clean							dirty
heavy							light
strong							weak
good							bad
loud							soft
clear							hazy
relaxed							tense
pleasant							unpleasant

DO NOT TURN PAGE TO RATE
SELECTION 2 UNTIL YOU ARE TOLD

ANSWER ALL OF THE FOLLOWING QUESTIONS

1. Have you ever listened to a live performance of jazz?

   Yes_____
   No _____

2. How often do you listen to jazz selections?

   Rarely _____
   Frequently_____
   Very often_____

3. Through what medium have you become most aware of jazz?

   Radio _____
   Movies _____
   Television_____
   Records _____

4. Approximately how many jazz records do you own? _____

5. Approximately what per cent of your records are jazz recordings? _____%

6. Do you have any favorite jazz style or jazz performer?

   Yes_____
   No _____

7. What musical element do you appreciate most in jazz?

   Melody _____
   Harmony _____
   Rhythm _____
   All the above_____
   Cannot say _____

8. Do you associate jazz with a tempo that is fast_____or slow_____or both___

9. Do you prefer jazz over the other music forms?

   Yes_____
   No _____

10. Match the man with the insturment. (Answer as many as you can.)

_____1.	Oscar Peterson	a.	clarinet
_____2.	Alphonse Picou	b.	trombone
_____3.	Bill Harris	c.	bass
_____4.	Joe Morello	d.	trumpet
_____5.	John Coltrane	e.	saxophone
_____6.	King Oliver	f.	piano
_____7.	Art Tatum	g.	drums
_____8.	Jack Teagarden		
_____9.	Ornette Coleman		
_____10.	Miles Davis		

Please put personal comments on the back of this paper.

APPENDIX B

TABLE V

MATRIX OF INTERCORRELATIONS OF TWELVE JAZZ SELECTIONS
AND RESIDUALS AFTER EXTRACTION OF FACTORS

Selections	1	2	3	4	5	6	7	8	9	10	11	12
1	(004)	-578	-548	615	756	-585	863	942	487	-770	790	639
2	-002	(007)	170	-102	-238	890	-765	-720	-580	902	-636	-904
3	000	006	(009)	-688	-781	298	-416	-494	227	285	-258	-049
4	004	-002	002	(007)	929	-196	644	625	190	-354	496	298
5	-002	002	000	-005	(005)	-388	721	726	115	-462	595	349
6	-001	001	002	-004	003	(006)	-736	-690	-269	848	-754	-760
7	-004	007	004	-005	003	004	(010)	966	641	-915	847	886
8	-004	007	007	-001	000	002	006	(015)	595	-898	828	809
9	001	-007	-010	001	-002	-006	-007	-010	(014)	-613	473	797
10	000	-010	-013	000	-004	-004	-007	-006	014	(023)	-810	-917
11	000	-008	-010	-001	000	-001	-006	-008	011	015	(011)	741
12	000	000	000	-002	001	005	002	003	-005	000	000	(005)

TABLE VI

ROTATED FACTOR LOADINGS OF
TWELVE JAZZ SELECTIONS

Selection	Style	I	II	III	IV	V	VI	h^2
1.	Contemporary	423	-556	305	251	594	-012	996
2.	Chicago (Blues)	-935	036	-315	038	-123	043	993
3.	Bop (Blues)	-196	830	311	182	-238	277	991
4.	Bop	019	-958	195	180	-059	009	993
5.	Kansas City	197	-940	040	168	168	125	995
6.	Kansas City (Blues)	-957	156	038	-200	-092	-067	994
7.	Chicago	638	-537	461	234	168	018	990
8.	New Orleans	575	-539	413	225	371	-078	985
9.	New Orleans (Blues)	285	010	941	087	105	005	986
10.	Contemporary (Blues)	-813	249	-382	-214	-195	158	977
11.	Abstract (Blues)	581	-346	236	662	191	021	989
12.	Abstract	763	-148	606	148	024	048	995

Transformation Matrix

Factor						
I	692	-508	384	243	236	-021
II	396	815	409	022	-091	047
III	-571	-133	794	123	-025	099
IV	-088	109	-227	912	-048	308
V	-170	217	-039	075	929	-231
VI	044	-021	-031	-297	264	916